P-3 Orion - WFF 04/08/19

Aircraft: P-3 Orion - WFF (See full schedule)
Flight Number: #2075: 2019 OIB Science Flight #4
Payload Configuration: Operation IceBridge
Nav Data Collected: No
Total Flight Time: 6.9 hours
Submitted by: Kelly Griffin on 04/08/19
Flight Segments:

From:	BGTL	**To:**	BGTL
Start:	04/08/19 10:50 Z	**Finish:**	04/08/19 17:43 Z
Flight Time:	6.9 hours		
Log Number:	19P017	**PI:**	Joseph MacGregor
Funding Source:	Bruce Tagg - NASA - SMD - ESD Airborne Science Program		
Purpose of Flight:	Science		
Miles Flown:	1780 miles		

Flight Hour Summary:

	19P017
Flight Hours Approved in SOFRS	250
Total Used	216.3
Total Remaining	33.7

19P017 Flight Reports

Date	Flt #	Purpose of Flight	Duration	Running Total	Hours Remaining	Miles Flown
03/26/19	#2053: 2019 OIB ATF Check	Check	0.9	0.9	249.1	0
03/27/19	#2059: 2019 OIB PTF-Laser	Check	2.3	3.2	246.8	0
03/28/19	#2061: 2019 OIB PTF-Radar	Check	3.2	6.4	243.6	0
04/01/19	#2068: 2019 OIB WFF-BGTL Transit Flight	Transit	6.9	13.3	236.7	2458
04/03/19	#2070: 2019 OIB Science Flight #1	Science	7.6	20.9	229.1	1938
04/05/19	#2072: 2019 OIB Science Flight #2	Science	7.7	28.6	221.4	1910
04/06/19	#2073: 2019 OIB Science Flight #3	Science	7.2	35.8	214.2	2000
04/08/19	#2075: 2019 OIB Science Flight #4	Science	6.9	42.7	207.3	1780
04/09/19	#2076: 2019 OIB Science Flight #5	Science	7.8	50.5	199.5	2045
04/10/19	#2081: 2019 OIB Science Flight #6	Science	10.1	60.6	189.4	2702
04/11/19	#2082: BGSF-BGTL Transit	Transit	2.2	62.8	187.2	696
04/12/19	#2083: 2019 OIB Science Flight #7	Science	7.2	70	180	2109
04/15/19	#2086: 2019 OIB Science Flight #8	Science	4.8	74.8	175.2	1243
04/16/19	#2087: 2019 OIB Science Flight #9	Science	7.6	82.4	167.6	2036

04/17/19	#2088: 2019 OIB Science Flight #10	Science	7.7	90.1	159.9	1937
04/18/19	#2090: 2019 OIB Science Flight #11	Science	7.8	97.9	152.1	2008
04/19/19	#2091: 2019 OIB Science Flight #12	Science	7.6	105.5	144.5	2104
04/20/19	#2092: 2019 OIB Science Flight #13	Science	6.9	112.4	137.6	0
04/22/19	#2094: 2019 OIB Science Flight #14	Science	6.6	119	131	1867
04/23/19	#2099: 2019 OIB Science Flight #15	Science	7.7	126.7	123.3	1979
04/25/19	#2102: 2019 OIB BGTL-KBGR Transit Flight	Transit	6.2	132.9	117.1	0
04/26/19	KBGR to BGSF Transit	Transit	5.7	138.6	111.4	0
05/05/19	2019 OIB Science Flight #16	Science	7.8	146.4	103.6	0
05/06/19	2019 OIB Science Flight #17	Science	8.4	154.8	95.2	0
05/07/19	2019 OIB Science Flight #18	Science	8.5	163.3	86.7	0
05/08/19	2019 OIB Science Flight #19	Science	8	171.3	78.7	0
05/12/19	2019 OIB Science Flight #20	Science	9	180.3	69.7	0
05/13/19	2019 OIB Science Flight #21	Science	7	187.3	62.7	0
05/14/19	2019 OIB Science Flight #22	Science	7.9	195.2	54.8	0
05/15/19	2019 OIB Science Flight #23	Science	8.3	203.5	46.5	0
05/16/19	2019 OIB Science Flight #24	Science	6.3	209.8	40.2	0
05/17/19	2019 OIB Transit	Transit	6.2	216	34	0
05/17/19	2019 OIB Transit	Transit	0.3	216.3	33.7	0

Flight Reports began being entered into this system as of 2012 flights. If there were flights flown under an earlier log number the flight reports are not available online.

Related Science Report:

OIB - P-3 Orion - WFF 04/08/19 Science Report

Mission: OIB
Mission Summary:

Mission: ICESat-2 Arctic Ocean #1 (racetrack)
Priority: Baseline

This new flight for 2019 flies a racetrack along a single ICESat-2 ground track, selected and timed so that our aircraft and the spacecraft fly the track as closely as possible in time, and also with the track drift-corrected according to winds measured from the aircraft. The particulars of the technique we will use to fly the track will depend on knowledge of ICESat-2's pointing accuracy just prior to the time of this flight. Options include out-and-back along the same or parallel and offset lines, varying the altitude of one or both lines, or even a four-segment line. The general idea is to obtain a composite swath wide enough to capture any likely pointing offset of the spacecraft. See Appendix D of the flight plans document for more details on the design of these flights.

Having increased over the past week our confidence in our ability to forecast conditions northwest of Ellesmere Island, where most zero-latency ICESat-2 tracks are to be found at the present time during our flight window but lacking near-contemporaneous imagery, we opted for this critical baseline mission. Today was also an exciting day because the GPS week rolled over from 2047 to a new integer multiple of 1024 to 2048, which runs the risk of some Y2K-like symptoms because the GPS string only uses 10 bits to provide the least significant digits of the GPS week, with the rest left to software. This event that has not occurred since 1999 and caused some oddities in our displays. We will be pre-processing our data tonight to verify that no GPS data were impacted. During our transit, Ellesmere and Axel Heiberg islands were clouded over, as predicted, but cleared as we descended off the coast and in between two smaller islands. Few leads were observed as we surveyed ICESat-2 beams 1L and 2L three times each, with only minimal haze occasionally observed. Headwall VNIR and SWIR channels experienced brief freezes, and one Applanix IMU failed. Otherwise, all instruments performed well and ATM reports 100% laser altimetry data collection. Due to the higher survey AGL (3500 ft) to achieve overlapping ATM T6 (wide-scan) swath, snow radar was operated at 2-8 GHz. We conducted two x-chats with students from South Africa and Kentucky and finally we conducted a ramp pass at 1000 ft AGL.

ICESat-2 reference ground track (RGT) / latency (minutes, positive/negative = ICESat-2 orbits after/before our flight)
157 / 0

Attached images/files:

1. Map of today's mission (John Sonntag / NASA)
2. KML of today's mission (John Sonntag / NASA)
3. Pressure ridge origination of multiple snow drifts (Jeremy Harbeck / NASA)
4. One of the very few leads we observed today (Jeremy Harbeck / NASA)
5. Multi-year ice floe (Jeremy Harbeck / NASA)
6. CAMBOT image at time of direct ICESat-2 underflight (Jeremy Harbeck / NASA)

Images:

Map of today's mission

Read more

Pressure ridge origination of multiple snow drifts

Read more

One of the very few leads we observed today

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Multi-year ice floe

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CAMBOT image at time of direct ICESat-2 underflight

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Submitted by: Joseph MacGregor on 04/09/19

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